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EXAMINER	
NGUYEN, PHUONGCHAU BA	
ART UNIT	PAPER NUMBER
2665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/938,737	<b>Applicant(s)</b> MIURA ET AL.	
	<b>Examiner</b> Phuongchau Ba Nguyen	<b>Art Unit</b> 2665	

-- The MAILING DATE of this communication appears in the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-10 is/are rejected.
- 7) ☒ Claim(s) 2-3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10-17-01;10-16-01</u> . | 6) <input type="checkbox"/> Other: _____  |

### ***Drawings***

1. Figure 18 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 7 and 9 are objected to because of the following informalities: Claims 7 (line 5) and 9 (line 5), the ":" should be changed to a ---,--- or deleted, since ":" is used to indicate a list of steps or elements to follow. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (figure 18) in view of Demizu (US2002/0159391).

**Regarding claim 1,** The admitted prior art (fig.18) discloses *a common cell buffer assembly (cell buffer 3, fig.18) that stores therein cells of the multiplex communication; and*

*a buffer management unit (reading controller 6, writing controller 1, vacant buffer management memory 4, class management memory 2, fig.18) that controls a process of reading (by reading controller 6-fig.18) a cell from said cell buffer assembly (cell buffer 3, fig.18) and a process of writing (by writing controller 1, fig.18) a cell into said cell buffer assembly (cell buffer 3, fig.18), thus controlling (by writing controller 1, see original disclosure, 0006, lines 2-4) communication between a large number of input-*

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*output ports (ports 1-n, fig.18) and a multiplex communication network (ATM network, not shown).*

The admitted prior art does not explicitly disclose *wherein said buffer management unit comprises a cell discard controller that discards a cell stored in said cell buffer assembly when a time period of not shorter than a preset discard reference time has elapsed since storage of the cell into said cell buffer assembly.*

The cell discard controller's discarding step is broadly interpreted as follows (see original disclosure, 0014-0016):

- (a) a cell is being written/stored into a cell buffer with a time stamp
- (b) there is a predetermined time period for how long the cell can be stored in the cell buffer.
- (c) discarding the written/stored cell from the cell buffer if the predetermined time period is expired.

Demizu (US2002/0159391) discloses Packet-Transmission Control Method and Packet-Transmission Control Apparatus, the apparatus and method are applied to an ATM network in which cells are multiplexed and transmitted in form of fixed length cells. In Demizu, there is provided a packet transmission apparatus for controlling transmission of packets including a discarding means (*cell discard controller*) for discarding the frame in accordance with what is determined by determining whether or not the frame is to be discarded on the basis of the period of time detected by detecting

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a time lapsing up to the present time since the arrival time stored (page 2, 0022, lines 9-11).

In Demizu, the system employs a mechanism to store arrival time of a cell in the nth buffer on the timeout control list (corresponding to (a)), see page 9, 0132, lines 1-4; there is a predetermined reference time period for controlling timeout of the cell in the buffer on the timeout control list (corresponding to (b)), see page 9, 0132, line 4; and a discarding means (*cell discarding controller*) to discard the cell in the nth buffer if the difference (time period) between the present time and the cell arrival time recorded in the nth buffer on the timeout control list exceeds the predetermined reference time period (corresponding to (c)), see page 9, 0132, lines 5-6.

The admitted prior art and Demizu are analogous art because they are from a similar problem solving area, control packet-transmission in ATM network.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the discarding method of Demizu with the admitted prior art.

The suggestion/motivation for doing so would have been to reduce the overhead of the timeout processing.

Therefore, it would have been obvious to combine Demizu with the admitted prior art to obtain the invention as specified in claim 1.

**Regarding claim 4,**

The admitted prior art (fig.18) further discloses ATM time-division data such as voice data, static image data, or movie data into a fixed-length, 53-byte cells and carries out communication in the form of cells. Transmission of the time-divided cells enables signals from a plurality of input ports to be multiplexed. The cells are temporarily stored in a buffer included in a communication controller, and are read from the buffer at a desired rate (QoS-Quality of Services or classes, i.e., CBR, ABR or VBR) or at desired time intervals set for each communication, see original disclosure, 0004. The admitted prior art further discloses that the reading controller 6-fig.2 reads and outputs cells at each input port at a preset rate in specified order, and the reading operation is based on the time counted by the clock 5 in order to ensure the preset communication rate, see original disclosure, 0007. Therefore, the fact that cells are read from the buffer at a desired rate is interpreted as follows:

ATM cells are stamped by the clock 5-fig.18 when cells are received at input ports. ATM cells are being sorted in class of qualities (e.g. each cell is inherently received at a desired rate compliance with its QoS) (corresponding to (*wherein the multiplex communication includes a plurality of different quality classes of communication*)) for reading (*discarding*) out from the buffer 3-fig.18 accordance to the class priorities (corresponding to (*controls the communication according to the quality class*)) and is based on time counted by the clock 5-fig.18 (corresponding to (*the discard reference time is set for each quality class*)).

**Regarding claim 5**, Since the applicant admitted in figure 2 of the instant application, that "the difference from the prior art communication control (see fig.18) is the presence of a writing time management memory 140 and a cell discard controller 103"(original disclosure, 0054, lines 1-4). Thus, examiner assumes that the limitations in claim 5 are also prior art.

Figure 18 of the admitted prior art of the instant application comprises:

*a vacant buffer management unit (4, fig.18) that manages vacant areas in said cell buffer assembly (see fig.5, 0060-0062);*

*a cell management unit (cell buffer 3, fig.18) that stores management information to manage places of storage of a series of cells, which constitute each communication (see fig.4, 0057-0059);*

*a writing controller (writing controller 1, fig.18) that writes a new cell in a vacant area specified by said vacant buffer management unit and transmits a result of the writing to said cell management unit (see fig.7, 0071-0080); and*

*a reading controller (reading controller 6, fig.18) that reads a cell from said cell buffer assembly, based on the management information in said cell management unit and transmits a result of the reading to said vacant buffer management unit (see fig.10, 0082-0091).*



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**Regarding claim 6,** The admitted prior art (fig.18) discloses the reading controller 6 (cell discard controller) reading out and discarding (*deleting*) a cell from the cell buffer 3 (*information on a place of storage of the cell*), see original disclosure, 0010, lines 1-8 & 0007, lines 5-6, {corresponding to (*said cell discard controller deletes information on a place of storage of the cell to be discarded from said cell management unit*)}.

The admitted prior art (fig.18) also discloses that the read-out or discarding area (*the place of storage*) is specified as a vacant area and becomes subject to management by the vacant buffer management unit for managing writable areas in the cell buffer, see original disclosure, 0006, lines 4-5 & 0007, lines 7-8, {corresponding to (*transmits the place of storage as a new vacant area to said vacant buffer management unit, thereby implementing discard of the cell*)}.

**Regarding claim 7,** The admitted prior art (fig.18) discloses a vacant buffer management memory 4 (buffer management for writing cells to cell buffer 3) for managing writable areas in the cell buffer 3 by specifying the vacant area in the cell buffer 3 so that the writing controller 1 can write a cell in the vacant area, see original disclosure, 0006.

The admitted prior art (fig.18) also discloses the management of the storage places of cells in the cell buffer 3, to carry out the discard of non-priority cells as part of the cell reading control, wherein the reading controller 6 (buffer management for discarding a cell from cell buffer 3) reads a cell from the cell buffer 3 and discards a

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non-priority cell without transmission in the course of reading the cell from the cell buffer, see original disclosure, 0010.

The admitted prior art does not explicitly disclose the buffer management performing a step of *discarding a cell stored in said cell buffer assembly when a time period of not shorter than a preset discard reference time has elapsed since storage of the cell into said cell buffer assembly.*

This discarding step is broadly interpreted as follows (see original disclosure, 0014-0016):

- (a) a cell is being written/stored into a cell buffer with a time stamp
- (b) there is a predetermined time period for how long the cell can be stored in the cell buffer.
- (c) discarding the written/stored cell from the cell buffer if the predetermined time period is expired.

Demizu (US2002/0159391) discloses Packet-Transmission Control Method and Packet-Transmission Control Apparatus, the apparatus and method are applied to an ATM network in which cells are multiplexed and transmitted in form of fixed length cells. The system employs a mechanism to store arrival time of a cell in the nth buffer on the timeout control list (corresponding to (a)), see page 9, 0132, lines 1-4; there is a predetermined reference time period for controlling timeout of the cell in the buffer on the timeout control list (corresponding to (b)), see page 9, 0132, line 4; and to discard

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the cell in the nth buffer if the difference (time period) between the present time and the cell arrival time recorded in the nth buffer on the timeout control list exceeds the predetermined reference time period (corresponding to (c)), see page 9, 0132, lines 5-6.

The admitted prior art and Demizu are analogous art because they are from a similar problem solving area, control packet-transmission in ATM network.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the discarding method of Demizu with the admitted prior art.

The suggestion/motivation for doing so would have been to reduce the overhead of the timeout processing.

Therefore, it would have been obvious to combine Demizu with the admitted prior art to obtain the invention as specified in claim 7.

**Regarding claim 8,** The admitted prior discloses all claimed limitations, except (1) *mapping the new cell to a writing time of the cell, and managing the mapping; and (2) when an elapsed time since the writing time of a cell exceeds a preset value, discarding the cell mapped to the writing time.*

Demizu (US2002/0159391) discloses Packet-Transmission Control Method and Packet-Transmission Control Apparatus. The method and apparatus employ recording (*mapping*) an arrival time (*a writing time*) of a cell, and a timeout control list for storing

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(*managing*) the cell arrival times (*the mapping*), see page 9, 0131, lines 7-8,  
(corresponding to (1));

Demizu also discloses the difference (*an elapsed time*) between the present time and a cell arrival time (*the writing time of a cell*) recorded in the nth buffer on the timeout control list exceeds the predetermined reference time period (*the preset value*), discarding the cell in the nth buffer (*discarding the cell mapped to the writing time*), see page 9, 00132, lines 1-4 (corresponding to (2)).

The admitted prior art and Demizu are analogous art because they are from a similar problem solving area, control packet-transmission in ATM network.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the discarding method of Demizu with the admitted prior art.

The suggestion/motivation for doing so would have been to carry out the timeout processing with a high degree of efficiency and in a simple way.

Therefore, it would have been obvious to combine Demizu with the admitted prior art to obtain the invention as specified in claim 8.

**Regarding claim 9**, The admitted prior art (fig.18) discloses a vacant buffer management memory 4 (program management for writing cells to cell buffer 3) for managing writable areas in the cell buffer 3 by specifying the vacant area in the cell

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buffer 3 so that the writing controller 1 can write a cell in the vacant area, see original disclosure, 0006.

The admitted prior art (fig.18) also discloses the management of the storage places of cells in the cell buffer 3, to carry out the discard of non-priority cells as part of the cell reading control, wherein the reading controller 6 (program management for discarding a cell from cell buffer 3) reads a cell from the cell buffer 3 and discards a non-priority cell without transmission in the course of reading the cell from the cell buffer, see original disclosure, 0010.

The admitted prior art does not explicitly disclose the program management performing a step of *discarding a cell stored in said cell buffer assembly when a time period of not shorter than a preset discard reference time has elapsed since storage of the cell into said cell buffer assembly.*

This discarding step is broadly interpreted as follows (see original disclosure, 0014-0016):

- (a) a cell is being written/stored into a cell buffer with a time stamp
- (b) there is a predetermined time period for how long the cell can be stored in the cell buffer.
- (c) discarding the written/stored cell from the cell buffer if the predetermined time period is expired.

Demizu (US2002/0159391) discloses Packet-Transmission Control Method and Packet-Transmission Control Apparatus, the apparatus and method are applied to an ATM network in which cells are multiplexed and transmitted in form of fixed length cells. The system employs a mechanism to store arrival time of a cell in the nth buffer on the timeout control list (corresponding to (a)), see page 9, 0132, lines 1-4; there is a predetermined reference time period for controlling timeout of the cell in the buffer on the timeout control list (corresponding to (b)), see page 9, 0132, line 4; and to discard the cell in the nth buffer if the difference (time period) between the present time and the cell arrival time recorded in the nth buffer on the timeout control list exceeds the predetermined reference time period (corresponding to (c)), see page 9, 0132, lines 5-6.

The admitted prior art and Demizu are analogous art because they are from a similar problem solving area, control packet-transmission in ATM network.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the discarding method of Demizu with the admitted prior art.

The suggestion/motivation for doing so would have been to reduce the overhead of the timeout processing.

Therefore, it would have been obvious to combine Demizu with the admitted prior art to obtain the invention as specified in claim 9.

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**Regarding claim 10,** The admitted prior discloses all claimed limitations, except (1) *mapping the new cell to a writing time of the cell, and managing the mapping; and (2) when an elapsed time since the writing time of a cell exceeds a preset value, discarding the cell mapped to the writing time.*

Demizu (US2002/0159391) discloses Packet-Transmission Control Method and Packet-Transmission Control Apparatus. The method and apparatus employ recording (*mapping*) an arrival time (*a writing time*) of a cell, and a timeout control list for storing (*managing*) the cell arrival times (*the mapping*), see page 9, 0131, lines 7-8, (corresponding to (1));

Demizu also discloses the difference (*an elapsed time*) between the present time and a cell arrival time (*the writing time of a cell*) recorded in the nth buffer on the timeout control list exceeds the predetermined reference time period (*the preset value*), discarding the cell in the nth buffer (*discarding the cell mapped to the writing time*), see page 9, 00132, lines 1-4 (corresponding to (2)).

The admitted prior art and Demizu are analogous art because they are from a similar problem solving area, control packet-transmission in ATM network.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the discarding method of Demizu with the admitted prior art.

The suggestion/motivation for doing so would have been to carry out the timeout processing with a high degree of efficiency and in a simple way.

Therefore, it would have been obvious to combine Demizu with the admitted prior art to obtain the invention as specified in claim 10.

***Allowable Subject Matter***

6. Claims 2-3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is 571-272-3148. The examiner can normally be reached on Monday-Friday from 10:00 a.m. to 2:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Business Center (EBC) at 866-217-9197 (toll-free).



Phuongchau Ba Nguyen  
Examiner  
Art Unit 2665